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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,825	06/28/2001	Sorin Faibish	10830.0080.NPUS00	5261

27927 7590 06/20/2005

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EXAMINER
PARRY, CHRISTOPHER L

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,825	FAIBISH ET AL.	
	Examiner	Art Unit	
	Chris Parry	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/02,6/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because step 86 in figure 13 has a minor typing error; term **BM** is used to represent bandwidth instead of previous initials **BW**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 14, line 8, a minor typing error is present, 40%% is used and should be amended to 40%.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani (U.S. 6,115,740).

Figure 1 of Mizutani show a video server system 1, comprising of video servers 10a~10n, which comprise of content storing means 11a~11n, contents delivering means 12a~12n, client 30a~30n, and management server 20 comprising of contents dynamic allocating means 22 and stream supply information managing means 21. Figure 7 shows in block form the contents dynamic allocating means 22 in greater detail along with video servers SV0 and SV1. Figure 12 shows data delivery apparatus 2 has a plurality of data storing means 51a-51c for storing data to be requested by clients. (column 12, lines 45-47). Figure 13 shows the data delivery apparatus 2 has a data memory means 40 which comprises a mass-storage memory for storing a data file of data to be delivered to clients (column 12, lines 41-44). Mizutani further teaches the means contained within a block indicated by the dotted lines in FIG. 13 may be installed

in a single video server. The data memory means 40 may be installed as a global memory in the video server system (column 13, lines 2-5).

Regarding Claim 1, Mizutani discloses in figure 13, data memory means 40, which comprises of a magneto optical disk or the like to store a library of contents. Also shown is a plurality of video servers comprising of data storing means 51a-51c and data delivering means 53a-53c. Figure 7 of Mizutani discloses content storing means video servers SV0 storing C0 and C1 while video server SV1 stores only C1. Mizutani further teaches ranking movies by using the predicted value B(i,t). Mizutani teaches the predicted number of times that the content i is simultaneously accessed at the time t is represented by Pi(t), the number of remaining streams that can be delivered from the video server s is represented by Rs, and the number of times that the content i is simultaneously accessed is represented by Ti, then the predicted maximum number B(i,t) is given by the following equation (column 6, lines 33-39):

$$B(i, t) = Pi(t) - Ti + \sum_{s} Rs \cdot E(s, i) \quad (Pi(t) \geqq Ti)$$

Figure 16 discloses each video server is pre-assigned content, with a number of streams allocated for each content based on anticipated number of streams for each content from clients. Mizutani fails to teach each video server comprising of local cache memory. The examiner gives Official Notice that it is notoriously well known in the art of video-on-demand, to store movies in cache of a server to better manage network resources. Accordingly, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by adding local cache to the video server.

As for Claim 2, Mizutani teaches the use of dedicating more network resources for popular content by assigning content to more than one video server as shown in figure 16. Mizutani fails to teach providing more local cache memory for less popular content. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by providing more local cache to the video server for the benefit of keeping less popular content in memory rather than move the content to another video server or delete the content all together.

As for Claim 3, Mizutani teaches in FIG. 16, each of video servers 110~115 has a maximum number Nstrm of 20, and numerals in parentheses represent the maximum numbers of streams of the contents that can be delivered from the respective video servers (column 2, lines 44-48). Mizutani fails to teach whether popular content is kept in its entirety in local cache. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by storing popular content in its entirety in local cache. One would have been motivated to store entire movies in cache for because more users can simultaneously access the same file from cache rather than through disk access, thereby making the system more efficient.

As for Claim 4, figure 16 of Mizutani show video servers 110-112 servicing C0, video servers 111 and 112 provide service for C1, while video servers 114 and 115 service C2. Video server 115 services the remaining content, C2, C3, C4, and C5. Mizutani fails to show only one movie being service by only one video server. The examiner gives Official Notice that it is notoriously well known in the art of video server systems, a single video server can be dedicated to servicing only one content stream. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by implementing a method whereas only one movie would be assigned a data mover set consisting of one data mover.

As for Claim 5, figure 7 of Mizutani discloses in block form the contents dynamic allocating means 22. Mizutani teaches, contents dynamic allocating means 22 controls the allocation of content between servers SV0 and SV1. Figure 7 shows copy executing means 22d copying and moving C1 from SV0 to SV1 to allocate more resources for C0.

As for Claim 6, Mizutani teaches in figure 16, that a higher number of streams are reserved for more popular content, like C0, and the streams are divided among a plurality of video servers as shown.

As for Claim 7, as discussed above for Claim 4, Mizutani teaches contents dynamic allocating means 22 controls, which video server, data memory means 40 distributes content to and monitors storage capacity for each video server to make sure enough resources are available to deliver popular content. If contents dynamic allocating means 22 detects a lack of resources to deliver C0, then C1

in SV0 is moved to the next video server SV1 to create enough resources for C0 to be delivered. Mizutani fails to teach specifically locking in the primary cache a plurality of entire movies. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by keeping entire movies in memory for the benefit of reducing data traffic loading on system drives during peak viewing conditions.

As for Claim 8, as discussed above for Claims 4 and 7, the video servers are programmed to free up storage by transferring content, C1, to another video server. However, Mizutani fails to teach transferring the servicing of least popular content in the primary cache from the primary cache to disk storage. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by moving least popular content to disk storage from the primary cache rather then delete the least popular content from the video server. One would have been motivated to make this modification for the purpose of freeing up cache for more popular content to allow more users more access to the popular content.

As for Claim 9, figure 7 of Mizutani discloses dynamic allocating means 22 receiving a request from a client. As shown, delivering video server determining means 22a receives the initial request and if the requested content C0 cannot be delivered to the client, a contents delivery rejecting means 22g indicates a rejection of the delivery of the content C0 to the client. A table information updating means 22h updates the information of each of the tables (column 8, lines 52-56). Mizutani fails to specify whether this negotiation between the video

server and client takes place during peak demand. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani to specify a system where negotiation takes place with a client during the peak demand hours for the benefit of providing communication to the client when resources are currently unavailable in the video server for the client.

Regarding Claim 10, Mizutani discloses in figure 13, data memory means 40, which comprises of a magneto optical disk or the like to store a library of contents. Also shown is a plurality of video servers comprising of data storing means 51a-51c and data delivering means 53a-53c. As previously discussed above for Claim 4, if there is insufficient resources to service popular content, less popular content is moved to another video server or the content is deleted if there isn't room for the less popular content on other video servers. Mizutani fails to teach specifically locking in the primary cache a plurality of entire movies. The examiner gives Official Notice that it is notoriously well known in the art of video-on-demand, to store entire movies in cache to allow more users to simultaneously access the same movie. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by keeping entire movies in cache.

As for Claim 11, Mizutani fails to teach transferring the servicing of a least popular content in the primary cache from the primary cache to disk storage. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by moving least

popular content to disk storage from the primary cache rather then delete the least popular content from the video server. One would have been motivated to make this modification for the purpose of freeing up cache for more popular content to allow more users more access to the popular content.

As for Claim 12, Mizutani discloses in figure 13, a plurality of servers comprising of data storing means 51a-51c and data delivering means 53a-53c. Mizutani further teaches ranking movies by using the predicted value B(i,t). Figure 16 discloses each video server is pre-assigned content, with a number of streams allocated for each content based on anticipated number of streams for each content from clients. Mizutani fails to teach each video server comprising of local cache memory and allocating less popular content to local cache. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by adding local cache to each video server. One would have been motivated to make this modification to keep less popular content in memory rather than move the content to another video server because moving data creates more drain on network resources.

As for Claim 13, figure 7 of Mizutani discloses in block form the contents dynamic allocating means 22. Mizutani teaches the method where, contents delivery requesting means 22b requests the video server SV0 to deliver the content C0. A copy execution decision means 22c detects a content (which is assumed to be a content C1) that most suffers lack of resources when the content C0 is delivered from the video server SV0, and determines a video server (which is assumed to be a video server SV1) to which the content C1 is to

be copied. For detecting the content C1, the copy execution decision means 22c calculates the number of lacking resources of each of the contents stored in the video server SV0 according to the equation (4). If Pi(t)<Ti, and hence the prediction of the number of lacking resources is invalid, then the copy execution decision means 22c copies the content with respect to which the equation (4) is calculated (column 7, lines 64-67 and column 8, lines 1-11). A copy executing means 22d requests the video server SV0 to copy the content C1 from the video server SV0 to the video server SV1, and also requests the video server SV1 to store the content C1. If the available storage capacity of the contents storing means 11b of the video server SV1 is not large enough to store the content C1, then the copy executing means 22d selects a content which least suffers the possibility of lack of resources in the contents storing means 11b, and deletes the selected content from the contents storing means 11b (column 8, lines 17-26).

As for Claim 14, Mizutani discloses in figure 16, that a higher number of streams are reserved for more popular content (C0) and the streams are divided among a plurality of video servers as shown.

Regarding Claim 15, Mizutani discloses a method for figure 13 where content is stored in data memory means 40. Also shown is a plurality of video servers coupled to data memory means 40. Mizutani further teaches ranking movies by using the formula discussed above to fine the predicted value B(i,t). Figure 16 shows content pre-assigned to each video server with more popular content having a higher amount of streams allocated compared to less popular content. However, Mizutani fails to teach each video server comprising of local

cache memory. The examiner gives Official Notice that it is notoriously well known in the art of video-on-demand, to store movies in cache of a server to better manage network resources. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by adding local cache to the video server.

As for Claim 16, Mizutani teaches the use of dedicating more network resources for popular content by assigning content to more than one video server as shown in figure 16. Mizutani fails to teach providing more local cache memory for less popular content. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by providing more local cache to the video server. One would have been motivated to make this modification to keep less popular content in memory rather than move the content to another video server because moving data creates more drain on network resources.

As for Claim 17, Mizutani teaches in FIG. 16, each of video servers 110~115 has a maximum number Nstrm of 20, and numerals in parentheses represent the maximum numbers of streams of the contents that can be delivered from the respective video servers (column 2, 44-48). Mizutani fails to teach whether popular content is kept in its entirety in local cache. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by storing popular content in its entirety in local cache. One would have been motivated to make this modification to allow more clients to view popular movies simultaneously

through cache rather that access the movie through disk access. Allowing users access to movies through cache makes the overall system more efficient.

As for Claim 18, figure 16 of Mizutani show video servers 110-112 servicing C0, video servers 111 and 112 provide service for C1, while video servers 114 and 115 service C2. Video server 115 services the remaining content, C2, C3, C4, and C5. Mizutani fails to show only one movie being service by only one video server. The examiner gives Official Notice that it is notoriously well known in the art of video server systems, a single video server can be dedicated to servicing only one content stream. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by implementing a method whereas only one movie would be assigned a data mover set consisting of one data mover.

As for Claim 19, figure 7 of Mizutani discloses in block form the contents dynamic allocating means 22. Mizutani teaches the method of contents dynamic allocating means 22 controls the allocation of content between servers SV0 and SV1. Figure 7 shows copy executing means 22d copying and moving C1 from SV0 to SV1 to allocate more resources for C0.

As for Claim 20, Mizutani discloses in figure 16, that a higher number of streams are reserved for more popular content (C0) and the streams are divided among a plurality of video servers as shown.

As for Claim 21, as discussed above, Mizutani teaches contents dynamic allocating means 22 controls which video server data memory means 40

distributes content to and monitors storage capacity for each video server to make sure enough resources are available to deliver content. If contents dynamic allocating means 22 detects a lack of resources to deliver C0, then C1 in SV0 is moved to the next video server SV1 to create enough resources for C0 to be delivered as shown in figure 7. Mizutani fails to teach specifically locking in the primary cache a plurality of entire movies. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by keeping entire movies in memory. One would have been motivated to make this modification to allow more clients to view popular movies simultaneously through cache rather that access the movie through disk access.

As for Claim 22, as discussed above for Claim 21, the video servers are programmed to free up storage by transferring content, C1, to another video server. However, Mizutani fails to teach transferring the servicing of least popular content in the primary cache from the primary cache to disk storage. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by moving least popular content to disk storage from the primary cache rather then delete the least popular content from the video server. One would have been motivated to make this modification for the purpose of freeing up cache for more popular content to allow more users more access to the popular content.

As for Claim 23, figure 7 of Mizutani discloses the method in which the user makes a request and how dynamic allocating means 22 handles the request and negotiates with the client. As shown, delivering video server determining

means 22a receives the initial request and if the requested content C0 cannot be delivered to the client, a contents delivery rejecting means 22g indicates a rejection of the delivery of the content C0 to the client. A table information updating means 22h updates the information of each of the tables (column 8, lines 52-56). Mizutani fails to specify whether this negotiation between the video server and client takes place during peak demand. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani to specify this method takes place during the peak demand hours for the benefit of providing communication to the client when resources are currently unavailable as requested by client.

Regarding Claim 24, Mizutani discloses in figure 13, data memory means 40, which comprises of a magneto optical disk or the like to store a library of contents. Also shown is a plurality of video servers comprising of data storing means 51a-51c and data delivering means 53a-53c linked to data memory means 40. Data delivering means 53a-53c deliver content to client(s). Mizutani further teaches, contents dynamic allocating means 22 controls, which video server, data memory means 40 distributes content to and monitors storage capacity for each video server to make sure enough resources are available to deliver content. If contents dynamic allocating means 22 detects a lack of resources to deliver C0, then C1 in SV0 is moved to the next video server SV1 to create enough resources for C0 to be delivered as shown in figure 7. Mizutani fails to teach locking in the cache a plurality of entire movies. The examiner gives Official Notice that it is notoriously well known in the art of video-on-demand, to

store entire movies in cache to allow more users to simultaneously access the same movie. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by keeping entire movies in cache.

As for Claim 25, as discussed above for claim 24, the video servers are programmed to free up storage capacity by transferring content, C1, to another video server. However, Mizutani fails to teach transferring the servicing of least popular content in the cache from the cache to disk storage. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Mizutani by moving the least popular content to disk storage from cache rather then delete the least popular content from the video server or move content to another video server. One would have been motivated to make this modification for the purpose of freeing up cache for more popular content to allow more users more access to the popular content.

As for Claim 26, Mizutani further teaches ranking movies by using the formula shown above to find the predicted value B(i,t). Figure 16 discloses each video server is pre-assigned content, with a number of streams allocated for each content based on anticipated number of streams for each content from clients. Mizutani further teaches the use of dedicating more network resources for popular content by assigning content to more than one video server as shown in figure 16. Mizutani fails to teach each video server comprises of local cache memory and allocating less popular content to local cache within each video server. However, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to modify the teachings of Mizutani by adding local cache to the video server. One would have been motivated to make this modification to keep less popular content in memory rather than move the content to another video server because moving data creates more drain on network resources.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to video-on-demand, more specifically storing and retrieving multimedia data:

U.S. Pat. No. 6,167,496 to Fechner

U.S. Pat. No. 5,935,206 to Dixon et al.

U.S. Pat. No. 6,324,581 B1 to Xu et al.

U.S. Pub. No. 2004/0261112 A1 to Hicks, III et al.

U.S. Pub. No. 2002/0157113 A1 to Allegrezza

The following patents are cited to further show the state of the art with respect to video-on-demand, more specifically using cache management to store data:

U.S. Pat. No. 6,128,701 to Malcolm et al.

U.S. Pat. No. 5,815,662 to Ong

U.S. Pat. No. 5,829,046 to Tzelnic et al.

U.S. Pat. No. 6,442,651 B2 to Crow et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris Parry whose telephone number is (571) 272-8328. The examiner can normally be reached on Monday through Friday, 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner's Initials: CLP
June 10, 2005

JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600